

Brought to you by the UK Equine Initiative and Gluck Equine Research Center

## SPOTLIGHT EQUINE

# Community Leadership Development and Land Use

When Lori Garkovich, PhD, professor in the Community Leadership Development department, joined the faculty in the University of Kentucky's College of Agriculture, she was astounded by the lack of involvement the university had with the local horse industry. Now, some 34 years later, she believes UK has improved in that area, particularly in extension.



Garkovich

Garkovich wears many hats at UK, one of which is extension specialist for the Community and Leadership Development Program. In this context she advises Kentucky counties and organizations on strategic planning, economic development, community planning, and other issues.

According to Garkovich, one of the biggest issues in modern Kentucky is land use and management. There are some communities in Kentucky that don't have planning and zoning committees,

and with urbanization spreading across the state, many of them are at a loss for how to address proposed changes to the use of land in their area.

The issue affects more people than just those who can purchase or build on certain areas of land. According to Garkovich, the landscape of a county has an effect on those living in it.

"The visual landscape really shapes

how people who live there think of themselves and how others think of them," said Garkovich.

In addition to a community's identity, the use of its land can impact its attractiveness to visitors. The vineyards in California are a good example, she said. While California's tourism and agriculture are not synonymous, one would falter without the other. Vineyards would take an economic hit without the revenue provided by visitors and the ability to brand their product. And without

## ARTICLES OF INTEREST

**Spotlight Equine: Community Leadership Development & Land Use**

**Foal Pneumonia Case Review**

**Customized Daily Weather Information for Kentucky Farms**

**Weed of the Month: Common Cocklebur**

**EXtension Horses Offers Digital Classroom**

**Toxin Topic: Slaframine Intoxication**

**Grayson-Jockey Club Research Foundation Funding for UK Projects**

**UK Professor Melds Apparel and Horses in Research Projects**

**New ELISA Test for EPM Diagnosis**

**UK Graduate Students Nab Top Three Emerging Scientist Awards**

**Upcoming Events**

the vineyards and farmland, fewer people would come to the region and spend money at other businesses.

(SPOTLIGHT EQUINE ...)

Garkovich said a large part of her job is to get communities to see the value in sustaining their agricultural land base and to understand the economic necessity of what they have.

Just as vineyards help define California's agriculture and tourism industries, horses are Kentucky's signature agricultural industry.

Garkovich's next goal is to develop a multi-use, horse-friendly trail system in Kentucky. Other states have trails built for hikers, bikers,

and horseback riders. Some communities, such as Highland Township in Michigan, have gone a step further to make their trails receptive to riders. The Detroit suburb not only has a 12-mile network of trails running through the adjacent national park, but a business plan to install hitching posts and watering areas downtown. Highland Township's stated purpose is land conservancy with a horsey twist.

As an extension specialist, Garkovich said

Highland Township is a model to create something similar in Kentucky.

"When people visit us, they want to ride a horse in horse country," she said. "If other states can do this, why can't we?"

For more information about the Community and Leadership Development Program, visit [www.uky.edu/Ag/CLD/ext.htm](http://www.uky.edu/Ag/CLD/ext.htm). UK

*Natalie Voss is a UK equine communications intern and recent graduate in equine science and management.*

## Foal Pneumonia Case Review

Foals, like other young animals, are especially susceptible to disease. A review of necropsy cases in foals over a one-year period at the University of Kentucky Livestock Disease Diagnostic Center was conducted to determine common pathologic diagnoses. A total of 272 foals, one day to six months of age, were submitted and examined in the one-year period. A variety of different pathologic diagnoses were made, and by far the most common diagnosis was pneumonia.

There were 84 foals diagnosed with pneumonia, which represented 31% of all submitted foals. The cases were arbitrarily separated into age groups of 1-6 days, 1-4 weeks, and more than 1-6 months of age. Forty-two cases (51%) were less than six days of age, seven cases (9%) were 1-4 weeks of age, and 33 cases (40%) were 1-6 months of age. In two cases the age was not indicated. These data show the first week of life to be a critical time for the development of pneumonia; however, pneumonia also is problematic in older foals. Filaries comprised 58% of the cases. There were 71 Thoroughbreds (87%), four

Standardbreds, two Quarter Horses, two Miniature Horses, one American Saddlebred, one Hanoverian, and one mixed-breed foal. The high percentage of Thoroughbreds is consistent with the horse population of the area. Thirty-eight of the 84 cases (45%) had other pathologic diagnoses in addition to pneumonia. Common additional conditions included enteritis (inflammation of the intestinal tract), septicemia, and fractured ribs.

**These findings show that pneumonia is one of the most important disease conditions in foals and that foals in the first week of life are especially at risk. A relatively small group of bacterial organisms are typically associated with the cases of foal pneumonia.**

Pneumonia in this group of foals was commonly associated with bacterial infection. Other causes of foal pneumonia, such as viruses and parasites, were not diagnosed. Of the 84 pneumonia cases, bacteria were isolated from 40 cases, and 44 cases had either no growth (38 cases) or nonpathogenic bacteria (six cases). The foals often had been treated, and prior antibiotic therapy likely contributed to the inability to isolate bacteria even though there likely was an underlying bacterial etiology in many of these cases. The most commonly iso-

lated bacterium from the cases of pneumonia was *E. coli*, which was cultured from 14 cases. *E. coli* was followed by *Rhodococcus equi* (13 cases), *Klebsiella pneumoniae* (8), *Streptococcus zooepidemicus* (7), *Actinobacillus equuli*

## (FOAL PNEUMONIA ...)

(5), and *Enterococcus* spp. (5). A variety of other bacteria were isolated on rare occasion. Thirteen cases had multiple bacteria isolated from the lung. *E. coli* was the most common bacterium isolated when a mixed culture was obtained.

*E. coli* was isolated primarily from younger foals, with 71% of the isolates from foals less than 1 week old. *Rhodococcus equi* is typically associated with pneumonia in older foals, and in this group of cases all 13 were in foals more than one month of age. *Klebsiella pneumoniae* also was recovered primarily from young foals, with seven out of eight cases in foals less than one week old. The *Streptococcus zooepidemicus*, *Actinobacillus equuli*, and *Enterococcus* spp. cases were more equally divided between both young and older foals.

These findings show that pneumonia is one of the most important disease conditions in foals and that foals in the first week of life are especially at risk. A relatively small group of bacterial organisms are typically associated with the cases of foal pneumonia. **UK**

Neil Williams, DVM, PhD, Dipl. ACVP, is the associate director at the the University of Kentucky Livestock Disease Diagnostic Center, or LDDC.

Reprinted from the Lloyd's *Equine Disease Quarterly*, University of Kentucky, Department of Veterinary Science, July 2010, Volume 19, Number 3.

## WEED OF THE MONTH

**Common name:** Common cocklebur  
**Scientific name:** *Xanthium strumarium* L.  
**Life Cycle:** Warm season annual  
**Origin:** United States  
**Poisonous:** Yes



**Common cocklebur**

Common cocklebur is distributed widely across the United States and occurs in pastures and cultivated crops. Infestations in pastures are usually more of a problem during periods of drought or due to overgrazing and most frequently occur in field margins. Cocklebur is named for the burrs that contain the seeds of this plant. Mature burrs are egg-shaped, hard, woody, and covered with hooked prickles. This allows the burrs to become attached and transported via animals. Leaves alternate with long petioles (leafstalks) and the leaf surface is rough.

Common cocklebur control is relatively easy when herbicides are applied to plants less than 12 inches tall that have not been mowed. Recommended treatment time is normally between May and July. Mowing is an effective treatment method when the cocklebur plants are about 12 inches tall, but the ideal mowing height is 4 inches or less. Consult your local Cooperative Extension Service personnel ([www.csrees.usda.gov/Extension](http://www.csrees.usda.gov/Extension)) for herbicidal control in your area.

William W. Witt, PhD, a researcher in the University of Kentucky Plant and Soil Sciences department, provided this information.



## CUSTOMIZED DAILY WEATHER INFORMATION FOR KENTUCKY FARMS

Detailed agricultural weather information that can be customized to a horse farm's exact location is just one of the pieces of information available to Kentucky horse owners through the University of Kentucky's College of Agriculture Weather Center.

According to Tom Priddy, extension/research agricultural meteorologist and UK Ag Weather Center director, this is the only

## (DAILY WEATHER ...)

extension ag weather center in the nation.

Horse owners can access information that includes current conditions, forecasts, outlooks, drought or severe information, hydrology (water) information, precipitation frequency, or seasonal updates by visiting <http://weather.uky.edu>. For mobile users, the UK Ag Weather Center can be accessed via <http://weather.uky.edu/pda.shtml>.

Formed by Priddy in 1977, the UK Ag Weather Center is a full-service agricultural weather center.

"We provide all facets of weather and climate information, research, and educational services to Kentucky," Priddy said. "This includes weather and climate data (i.e., rainfall amounts, weather models, and weather and climate-related news stories). We also provide information and products to other land-grant universities and local county extension agents across the nation in real-time."

According to Priddy, the UK Ag Weather Center's mission is to provide agricultural weather services, products, and educational resources that will minimize weather-related surprises for Kentucky residents with agricultural needs. The site's weather information is provided by the National Weather Service, the National Climatic Center, the Midwest Regional Center, and various information generated by Ag Weather Center staff using the center's Geographic Information System.

Resources Priddy suggests for horse owners and riders include:

- Farm/ranch precision agriculture, lawn, and garden point forecast


- Insect degree day forecast models

- Timely rainfall departure maps (updated daily for various time periods)

- Kentucky Mesonet data per county

- County-by-county drought information, updated weekly

- Weather for the Kentucky Crop and Weather Report

- The center's new Ag Weather on the Go—weather service on your cell phone 

*Holly Wiemers, MS, is communications director for UK's Equine Initiative.*

### Horse Heat Stress Threat

The combination of hot, muggy weather conditions prompts some real concern for humans as well as horses and pets. The livestock heat safety index is a combination of air temperature and humidity. That one-two punch makes it hazardous for people and animals. Dew point temperatures above 65° lead officials to declare conditions dangerous for people and livestock.

Visit [www.ca.uky.edu/news/?c=s&d=17](http://www.ca.uky.edu/news/?c=s&d=17) to see more UK Ag weather news.

*Information provided by Tom Priddy, extension/research agricultural meteorologist and UK Ag Weather director, and UK Ag news release.*

## EXtension Horses Offers Digital Classroom

The Cooperative Extension Service at the University of Kentucky is designed to educate Kentucky residents about topics in agriculture, economics, leadership, and youth development through seminars, hands-on learning, and questions fielded by experts. When Kentuckians cannot make it to a learning program or reach an extension agent, a digital classroom in the form of eXtension (pronounced e-extension) is available.

The eXtension website is a cooperative project by experts across the country. It contains informational mini-sites on 32 resource areas covering everything from child care to imported fire ants, each with 20-150 topic experts providing content. One of these resource areas is horses.

As highlighted in June's Spotlight Equine feature ([www.TheHorse.com/16561](http://www.TheHorse.com/16561)), eXtension Horses (formerly known as HorseQuest) disseminates information on equine topics that include breeds, facilities, ethics, nutrition, training, and more. The site provides general articles on various subjects, a glossary, instructional videos, and monthly webcasts. Content for eXtension Horses is provided by teaching and research faculty as well as veterinarians, extension agents, and other staff who work to address popular questions or topics they encounter in the field. The site also provides a calendar containing upcoming educational events, which are searchable by state.

(EXTENSION ...)

Ashley Griffin, content design leader for the eXtension Initiative at UK, said the site seeks to differentiate itself from other Internet resources.

“Creators of content are part of the university system and are peer reviewing each other’s content ... this is looked on as a trusted resource to the general public,” she said.

According to Griffin, visitors seem to be responding.

The majority (nearly 80%) of visitors access the site from search engines. Visitors finding horse content at [www.extension.org](http://www.extension.org) via the eXHorses YouTube channel on average view as many as eight pages before logging off.



She said site feedback and viewership on the eXHorses YouTube channel ([www.youtube.com/user/exHorses](http://www.youtube.com/user/exHorses)) is positive and encouraging.

Another advantage to eXtension, she said, is the vast amount of information available in one place because of a national cooperative extension system. Instead of being limited to the knowledge of one website builder or region-specific information that might not be applicable to all users, eXtension draws its articles and topics from an enormous number of experts nationwide.

Griffin said a unique feature on eXtension Horses is “ask-the-expert,” where visitors can search

postings for answers to a specific question. If they cannot find an answer addressed in the available articles, they can submit their question to the experts who contribute to the site. Visitors can also submit photos with their questions to help illustrate an issue or problem.

Griffin warned that while helpful, the ask-the-expert feature is not intended to replace the advice of a veterinarian or professional trainer.

She said one of the most popular features, the webcasts, are a relatively new part of the site. While often done by members of the eXtension Horses team, they are sometimes conducted by members of a partner site called My Horse University ([www.MyHorseUniversity.com](http://www.MyHorseUniversity.com)), which

## TOXIN TOPIC SLAFRAMINE INTOXICATION

The wet spring weather and abundant clover growth in Central Kentucky has made 2010 a bumper year for slaframine toxin, or “slobber toxin.” Slaframine is a mycotoxin produced by the fungus *Rhizoctonia leguminicola*. This fungus can be present on clover, alfalfa, and other legumes. Cool, wet, humid weather promotes growth of the fungus and production of slaframine. Many cases of slobber syndrome are associated with feeding affected legume hays. All animals are sensitive to the toxin’s effects.

In horses, excessive salivation is usually the first sign of slaframine exposure. Signs typically develop within hours of exposure. Other signs include feed refusal, diarrhea, colic, and decreased milk production in lactating animals. Signs are usually mild to moderate and generally do not result in any life-threatening problems. Slaframine’s effects are caused by stimulation of the parasympathetic nervous system (PNS, the part of the

nervous system responsible for the “rest and restore” response). Most cases resolve quickly after removal of the contaminated feed source, but more severe cases might require treatment such as supportive fluids and the drug atropine.

If slaframine intoxication is suspected, the hay or forage can be examined for evidence of *Rhizoctonia leguminicola* contamination and can also be tested for slaframine. Rapid recovery from clinical signs after hay removal or removal of the animal from a pasture containing clover or other legumes supports a presumptive diagnosis of slaframine intoxication. Owners should contact their veterinarians right away if they notice animals with excessive salivation, because many other causes of hypersalivation exist. **UK**

*Cynthia Gaskill, DVM, PhD, clinical veterinary toxicologist at the University of Kentucky Livestock Disease Diagnostic Center, or LDDC.*

(EXTENSION ...)


offers free webcasts and paid online courses through its own site but provides some free content through eXtension. Webcasts include chat sessions, which allow participants to ask questions during instruction. Additional partners for eXtension Horses include the American Youth Horse Council and the American Quarter Horse Association, which is sponsoring a program to digitize the content of its Junior Master Horseman educational program through eXtension.

The idea for the eXtension Horses site came from discussions between extension specialists in the Southern region who already worked together on horse-related events.

"They wanted to do something more that could be coined as adult education online, but have quickly provided youth and youth leader materials in their curriculum as well," said Griffin.

Through the use of social media sites Twitter and YouTube, that content is growing fast, she said.

EXtension Horses is sponsored by Purina Mills.

For more information, visit [www.extension.org/horses](http://www.extension.org/horses). 

*Natalie Voss is a UK equine communications intern and a recent graduate in equine science and management.*

## GRAYSON-JOCKEY CLUB RESEARCH FOUNDATION FUNDING FOR UK PROJECTS

The Grayson-Jockey Club Research Foundation will fund three projects at the University of Kentucky Gluck Equine Research Center in 2010.

The grants are:

Toxins TCD A & B of *Clostridium Difficile* for Horse Immunization, awarded to Sergey Artiushin, PhD;

Orthopedic and Genetic Roles in Wobbler Syndrome, awarded to James MacLeod, VMD, PhD, John S. and Elizabeth A. Knight chair, professor of veterinary science, and Equine Initiative director at UK; and

Molecular Characterization of Neurovirulent Equine EVH-1 Strains, awarded to Udeni Balasuriya, BVSc, MS, PhD, professor of virology.

## UK Professor Melds Apparel and Horses in Student and Academic Research Projects

Kimberly Miller-Spillman, PhD, professor in merchandising, apparel, and textiles within the University of Kentucky's College of Agriculture, proves equine research can occur in many contexts outside of the traditional models of horse health. She melds her interest in horses and apparel in several ways to create meaningful projects for students and a tie-in to Kentucky's signature industry.

She currently teaches a course for merchandising majors titled "Social and Psychological Aspects of Apparel" that requires a research project. Three students in her spring class chose equine topics for their research and presentations, with topics including "Race and Society: The Level of Involvement

**"The research opportunities for apparel and horses seem endless, and I enjoy brainstorming possibilities."**

**Kimberly Miller-Spillman**

from African Americans in Horseback Riding"; "The Perceived Effects of Attire on Participants in Equestrian Events"; and "Sidesaddle and Astride Dress in a Contemporary Context."

In describing the process students followed, which included surveys, formatting scientific manuscripts, qualitative and quantitative research methods,

## (APPAREL AND HORSES ...)

and a research paper and corresponding presentation, Spillman said, "Social and psychological theories of dress and behavior along with historic research methods inform their research efforts. Students learn about survey research methods, interview methods, online data collection, and how to take data and connect it to theoretical concepts."

Spillman said she used the occasion of the 2010 Alltech FEI World Equestrian Games (WEG) to inspire student design ideas for another project, although this project is not formally affiliated with the Games in any way.

"Merchandising students have diverse career interests that include retail management, event planning, promotion and displays, and apparel design," she said. "For the equestrian event design project, students chose from three options using the Games for ideas. They could design a garment, a kiosk, or an event based on inspiration from historical clothing. This project took historic clothing out of the past and into the present. All students followed the design process and received feedback from three experts mid-semester."

The top three designs were blouses, a kiosk, and a bar.

### GARMENT DESIGN: BLOUSES BY STUDENT WILL STEVENSON



Final Designs by Stevenson

A kiosk designed by student Kaitlin Burks included a World Equestrian Games video simulation, a video game system that is interactive, electronic, innovative, and free-standing and would allow event spectators to stay

involved during waits between events. The game includes a Wii Fit board, a horse control stick, and games for single and multiple players. All the WEG events, except dressage and para dressage, are included. Players can pick their outfits from historically inspired garments.

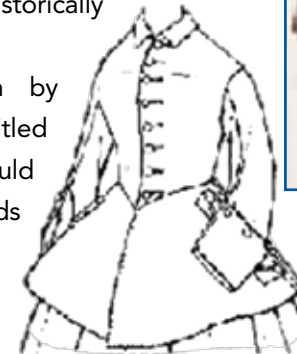
Event-related design by student Cruse Ash was titled "WEGO's", a bar that would appeal to 21-30-year-olds and features a modern appearance with some historic costuming.

"The research opportunities for apparel and horses seem endless, and I enjoy brainstorming possibilities," Spillman said. "As a social scientist, I believe that individuals reveal a great deal about themselves through their dress choices." UK

*Holly Wiemers, MS, is communications director for UK's Equine Initiative.*



Stevenson's historic inspiration: 19th century riding costume and jacket



## New ELISA Test For EPM Diagnosis Developed at Gluck Center

Diagnostic assays for equine protozoal myeloencephalitis (EPM) developed under the leadership of Daniel Howe, PhD, a molecular parasitologist at the University of Kentucky Gluck Equine Research Center, are now available exclusively at Equine Diagnostic Solutions LLC (EDS).

The new diagnostic tests are quantitative enzyme-linked immunosorbent assays (ELISAs) based on multiple immunogenic proteins located on the surface of the *Sarcocystis neurona* parasite, which causes the neurologic disease EPM. Horses infected with *S. neurona* produce a vigorous antibody response to these parasite proteins, which can be

(NEW ELISA TEST ...)

accurately measured with the ELISAs.

“Recent studies have demonstrated the clinical utility of the new tests for the accurate diagnosis of EPM,” Howe said. “Specifically, by using the ELISAs to compare the amount of antibody present in the serum vs. the cerebrospinal fluid of a horse, it is now possible to achieve a much more reliable assessment of whether the horse is suffering from EPM.”

Howe joined the faculty at the Gluck Center in 1999 and heads a research program focused on the molecular biology of *S. neurona*.

The research leading to the development of these assays was made possible by funds to Howe’s laboratory from the Amerman Family Equine Research Endowment.

The development and validation of the diagnostic assays was a collaborative effort between Howe and Michelle Yeargan, research specialist at the Gluck Center; Martin Furr, DVM, PhD, Dipl. ACVIM, Adelaide C. Riggs chair in equine medicine at Virginia Tech; Steve Reed, DVM, Dipl. ACVIM, a world-renowned expert in equine neurologic diseases at Rood & Riddle Equine Hospital in Lexington; and Jennifer Morrow, PhD, and Amy Graves, MT(ASCP), at EDS.



**“By using the ELISAs to compare the amount of antibody present in the serum vs. the cerebrospinal fluid of a horse, it is now possible to achieve a much more reliable assessment of whether the horse is suffering from EPM.”**

**Daniel Howe, PhD**

The exclusive rights to the second-generation diagnostic tests for EPM were obtained by EDS in January.

EDS, which opened in August 2009, is a new diagnostics laboratory located on the Coldstream Research Campus of the University of Kentucky. It was opened by Morrow and Graves, who were previously the principal scientists of Equine Biodiagnostics Inc. (EBI), which was founded in 1996 through Kentucky Technologies Inc. (KTI) and based on groundbreaking

EPM research by David Granstrom, DVM, PhD, Howe’s predecessor at the Gluck Center.

For more information, contact Howe at 859/218-1113 or Morrow at 859/288-5255. For information on Howe’s laboratory, visit [www.ca.uky.edu/gluck/HoweDK.asp](http://www.ca.uky.edu/gluck/HoweDK.asp), or for information on EDS, visit [www.equinediagnosticsolutions.com](http://www.equinediagnosticsolutions.com). **UK**

*Daniel Howe, PhD, is a molecular parasitologist at the Gluck Equine Research Center. Jenny Blandford is the Gluck Equine Research Foundation assistant at the Gluck Center.*

## UK Graduate Students Nab Top Three Emerging Scientist Awards

Three University of Kentucky College of Agriculture graduate students that are researching forage were awarded the top three spots in

the Emerging Scientist competition during the American Forage and Grassland Council’s (AFGC) annual conference in Springfield, Mo., in June.


Laura Schwer, graduate student in the College of Agriculture’s Plant and Soil Sciences department and assistant coordinator for UK’s



### (SCIENTIST AWARDS ...)

Pasture Evaluation Program, was awarded top honors. Jennifer Johnson, graduate student within the U.S. Department of Agriculture's Agricultural Research Service, placed second. Third went to Christin Herbst, graduate student in Animal and Food Sciences.

Each participant had to be nominated by an AFGC member to be eligible to attend the conference and contest. The annual conference

is attended by forage and livestock producers, agribusinesses, and research, extension, and teaching faculty in crop and animal sciences, agricultural engineering, and other affiliated disciplines. More information about AFGC can be found by visiting [www.afgc.org](http://www.afgc.org). 

*Holly Wiemers, MS, is communications director for UK's Equine Initiative.*

### UPCOMING EVENTS

**July 25**, 8 a.m.-5:15 p.m., International Symposium on Equine Reproduction, Practitioner Day, University of Kentucky campus.

**July 26-30**, International Symposium on Equine Reproduction, University of Kentucky campus (College of Agriculture and residence halls), Lexington, Ky., invitation only.

**July 31**, 8 a.m.-noon, International Symposium on Equine Reproduction, Farm Managers Day, University of Kentucky campus. Registration is still open and the event is free. Email [info@ISER2010.com](mailto:info@ISER2010.com) for more information.

**Aug. 7**, 4 p.m., Rood & Riddle Hats Off Day, Kentucky Horse Park.

**Aug. 19-29**, Kentucky State Fair, Kentucky Fair and Exposition Center, Louisville.

**Aug. 26**, 4 p.m., Department of Veterinary Science Equine Diagnostic Research Seminar Series. Duncan Peters, DVM, from Hagyard Equine Medical Institute in Lexington, will speak on sport horse medicine.

**Sept. 9**, "Power of the Horse" reception benefiting Race for Education and UK Equine Initiative at the University of Kentucky Art Museum.

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